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ARTICLE X.

Description of New Fresh Water and Land Shells. By Isaac Lea. Read August 18, 1843.

Heretofore, very little examination of the rivers and lakes of Florida has been made for the *mollusca* inhabiting them, two or three *Uniones* only having been described from that territory. Recently, I have been fortunate enough to obtain, through the kindness of Dr. Budd, of New York, a number of specimens which were collected by Mr. Samuel B. Buckley, and sent to him. Among them I found only two species before described—the *Unio Blandingianus*, (Nobis,) and *Unio modioliformis*, (Nobis.) The number of new ones proposed in this paper, from that territory, is nine species of *Uniones*. The remainder, from other localities, I owe to the kindness of various friends.

Unio amygdalum, Pl. 39. Fig. 1.

Testà obovatà, subinflatà, valdè inaquilaterali, posticè rotundatà; valvulis subtenuibus; natibus prominentibus; epidermide polità, radiatà; dentibus cardinalibus parvis; lateralibus sublongis curvisque; margarità albà et valdè iridescente.

Shell obovate, somewhat inflated, very inequilateral, rounded behind; valves rather thin; beaks somewhat prominent; epidermis polished, smooth; cardinal teeth small; lateral teeth rather long and curved; nacre white and very iridescent.

Hab. Lake George, Florida. S. B. Buckley.

My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. .5, Length .9, Breadth 1.3 inches.

Shell obovate, somewhat inflated, very inequilateral, rounded and compressed behind; umbonial slope rounded; substance of the shell rather thin; beaks somewhat prominent; ligament very short and thin; epidermis smooth and polished, with numerous green rays covering the whole disk; cardinal teeth small, single in the right and double in the left valve; lateral teeth rather long and curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed above the centre of the cavity of the beaks; cavity of the shell deep and rounded; cavity of the beaks rather deep and angular; nacre beautifully pearly and highly iridescent.

Remarks.—This is a small and uncommonly beautiful species. The two specimens before me vary but little in size. They seem to be adult—are about the size of *Unio glans*, (Nobis,) but differ from it entirely in the nacre, in having rays and in being obovate. The epidermis is yellow, but the numerous and close rays which cover the

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whole disk give it a dark appearance, particularly on the posterior part. The beaks being eroded, I am unable to give their characters, but there is an appearance of obsolete undulations.

Unio Buckleyi, Pl. 39. Fig. 2.

Testâ ellipticâ, inflatâ, valdè inæquilaterali, posticè angulatâ; valvulis crassis; natibus subprominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus magnis crassisque; lateralibus longis curvisque; margaritâ purpureâ vel salmonis colore tinctâ.

Shell elliptical, inflated, very inequilateral, angular behind; valves thick; beaks rather prominent; epidermis dark-brown; cardinal teeth large and thick, lateral teeth long and curved; nacre purple or salmon-coloured.

Hab. Lake George and Lake Monroe, Florida. S. B. Buckley.

My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. 1.5, Length 2, Breadth 3.7 inches.

Shell elliptical, inflated, very inequilateral, angular behind; substance of the shell thick; beaks rather prominent; ligament long and rather thick; epidermis dark-brown, smooth, and shining, with obscure green rays in the young; cardinal teeth large and thick, single in the right and double in the left valve; lateral teeth long, thick, and slightly curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed above the centre of the cavity of the beaks; cavity of the shell rather deep; cavity of the beaks rather deep; nacre purple or salmon-coloured.

Remarks.—A number of specimens of this species are before me, and they present many different forms, differing in many respects as the varieties of the *U. complanatus* do from each other. The prevailing colour of the nacre, which is very brilliant, is salmon, but many are purple—two only are white. The epidermis of all the older specimens is dark-brown—some nearly black, and without rays; the younger are smooth and polished on the outside, with numerous obscure green rays, darker on the posterior slope. The general outline, in most specimens, is like that of *U. Batavus*, (Lam.,) but some individuals approximate to that of *U. ovalis*, (Flem.)

Unio minor, Pl. 39. Fig. 3.

Testâ ellipticâ, subinflatâ, valdè inæquilaterali, posticè rotundatâ; valvulis crassis; natibus subprominentibus; epidermide striatâ, subnigrâ; dentibus cardinalibus subgrandibus; lateralibus parvis curvisque; margaritâ albâ et iridescente.

Shell elliptical, rather inflated, very inequilateral, rounded behind; valves thick; beaks rather prominent; epidermis striate, nearly black; cardinal teeth rather large; lateral teeth small and curved; nacre white and iridescent.

Hab. Lake Monroe and Lake George, Florida. S. B. Buckley.

My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. .4, Breadth .9 of an inch.

Shell elliptical, rather inflated, very inequilateral, rounded behind; umbonial slope rounded; substance of the shell thick, thinner behind; beaks rather prominent; ligament very short and thin; epidermis closely striate, nearly black; cardinal teeth rather large; lateral teeth small and curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed above the centre of the cavity of the beaks; cavity of the shell deep; cavity of the beaks rather deep and angular; nacre pearly white and iridescent.

- 1. Unio amagilatum. 2. Unio Buckleyi 3. Unio minor
- From Nature & on Stone by French .

Sinclair's Lith Phil

Remarks.—This is an interesting species, rather smaller than the *U. parvus*, (Barnes,) and very closely resembling it in most of its characteristics. Like it, the epidermis is dark and roughly striate. It differs in form in not being transverse, but inclining to be obovate—also apparently being devoid of the singularly beautiful undulations of the beaks of the parvus. I am not, however, positive on this subject, as the three specimens submitted to my examination are all slightly eroded at the beaks. The position and form of the dorsal cicatrices differ. In the parvus they form a row across the cavity of the beaks.

On a close examination of the region of the anterior cicatrices, may be observed a third distinct cicatrix, placed on the side of the anterior portion of the cardinal tooth. Nearly the same position of a cicatrix was observed and described in the *U. cucumoides*, (Nobis.) Trans. Am. Phil. Soc., vol. viii. p. 193.

Unio fuscatus, Pl. 40. Fig. 4.

Testâ ellipticâ, subinflatâ, valdè inæquilaterali, posticè biangulatâ; valvulis tenuibus; natibus vix prominentibus; epidermide tenebroso-fuscâ, obsoletè radiatâ; dentibus cardinalibus parvis; lateralibus sublongis subrectisque; margaritâ cupreâ.

Shell elliptical, rather inflated, very inequilateral, biangular behind; valves thin; beaks slightly prominent; epidermis dark-brown, obsoletely radiated; cardinal teeth small; lateral teeth rather long and nearly straight; nacre copper-coloured.

Hab. Black Creek, Florida. S. B. Buckley. My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. .5, Length .9, Breadth 1.7 inches.

Shell elliptical, rather inflated, very inequilateral, biangular behind; umbonial slope subangular; valves thin; beaks slightly prominent; ligament rather short and thin; epidermis dark-brown—with numerous small obscure green rays, more distinct on the umbones; cardinal teeth small, disposed to be double in both valves; lateral teeth rather long, thin, and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the anterior of the lateral tooth. Cavity of the shell rather shallow; cavity of the beaks small and subangular. Nacre copper-coloured and iridescent.

Remarks.—This species somewhat resembles Unio pusillus, (Nobis,) but may at once be distinguished by the absence of the sharp angle of the umbonial slope of that shell, and the distinct angle of its posterior margin.—It differs also in the colour of the nacre. The fuscatus is dark on the posterior slope, and compressed at the posterior portion of the shell. The minute rays, which are nearly lost in the dark hue of the epidermis, are closer and more distinct towards the beaks. Neither of the three specimens before me are perfect at the beaks, and I am therefore unable to say whether the tips are undulated in this species.

Unio Buddianus, Pl. 40. Fig. 5.

Testà oblongà, compressà, inæquilaterali, posticè subbiangulatà; valvulis subcrassis; natibus subprominentibus; epidermide subnigrà; dentibus cardinalibus magnis lamellatisque; lateralibus perlongis subrectisque; margarità purpureà et iridescente.

Shell oblong, compressed, inequilateral, subbiangular behind; valves rather thick; epidermis almost black; cardinal teeth large and lamellar; lateral teeth long and nearly straight; nacre purple and iridescent.

Hab. Lake George and Lake Munroe, Florida. S. B. Buckley. My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. 1.3,

Length .2,

Breadth 3.9 inches.

Shell oblong, compressed, inequilateral, subbiangular behind; substance of the shell rather thick; beaks rather prominent; ligament long and rather thick; epidermis almost black, smooth on the superior part of the disk; cardinal teeth large and lamellar, single in the right and double in the left valve; lateral teeth long and nearly straight; anterior cicatrices distinct, posterior cicatrices confluent; dorsal cicatrices in the centre of the cavity of the beaks; cavity of the shell shallow; cavity of the beaks small; nacre purple and very iridescent.

Remarks.—But two individuals of this species are before me, one of which is much younger than the other. In outline and general characteristics it resembles *U. complanatus*. It will, no doubt, be found with white and salmon-coloured nacre. In the larger specimen the anterior dorsal margin is somewhat truncate, and there is a like disposition in the younger one.

Unio trossulus, Pl. 40. Fig. 6.

Testâ obliquâ, cuneatâ, inflatâ, valdè inæquilaterali; posticè subangulatâ; valvulis crassis; natibus prominulis, undulatis; epidermide nitidâ, luteâ, radiatâ; dentibus cardinalibus parvulis; lateralibus rectis subbrevibusque; margaritâ albâ et valdè iridescente.

Shell oblique, wedge-shaped, inflated, very inequilateral, subangular behind; valves thick; beaks somewhat prominent, undulated; epidermis polished, yellow, radiated; cardinal teeth rather small; lateral teeth straight and rather short; nacre white and very iridescent.

Hab. Monroe Lake, Florida. S. B. Buckley. My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. .6,

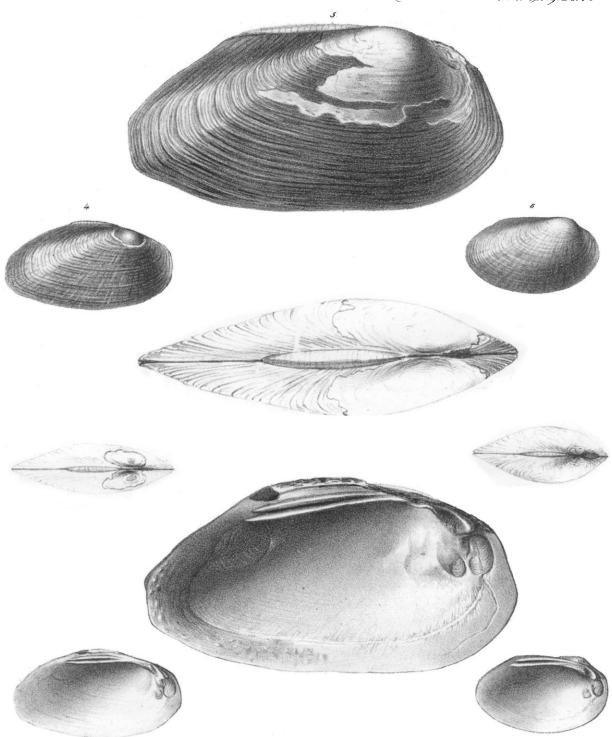
Length .8,

Breadth 1.4 inches.

Shell oblique, wedge-shaped, inflated, very inequilateral, subangular behind; umbonial slope rounded; substance of the shell thick; beaks somewhat prominent, and beautifully undulated at the tip; ligament short and very thin; epidermis smooth, polished, yellow, with dark green rays on the posterior portion; cardinal teeth rather small, double in both valves; lateral teeth straight and rather short; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed across the cavity of the beaks; cavity of the shell rather deep and rounded; cavity of the beaks small and subangular; nacre pearly white and beautifully iridescent.

Remarks.—A single individual only of this beautiful and distinct little species is before me. It has somewhat the form of *Unio Troostensis*, (Nobis,) but may easily be distinguished from that species by its rays, and the undulations of the beaks. In this specimen the anterior portion is yellow with obsolete rays, the posterior portion is darkgreen with closely set rays, which are, near the margin, so intense as to give a beautiful deep green border to the interior margin. The undulations of the beaks are numerous, beautifully regular, and double. The nacre is very unusually pearly and brilliant. There is a third distinct cicatrix, resembling that in the *U. minor*, herein described. The

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- 4. Unio fuscatus. 5. Unio Buddianus.
- 6. Unio trossulus.

FromNature& on Stone by French.

Sinclair's Lith Phila

trossulus has some resemblance to the amygdalum, herein described, being nearly of the same size. The latter, however, is a thinner shell, is not oblique, and the rays are distinct over the whole disk.

Unio occultus, Pl. 41. Fig. 7.

Testâ ellipticâ, compressâ, inæquilaterali, posticè subbiangulatâ; valvulis tenuibus; natibus subprominentibus undulatisque; epidermide nitidâ, tenebroso-fuscâ, obsoletè radiatâ; dentibus cardinalibus subgrandibus; lateralibus longis subcurvisque; margaritâ purpureâ et iridescente.

Shell elliptical, compressed, inequilateral, subbiangular behind; valves thin; beaks somewhat prominent and undulated; epidermis polished, dark-brown, and obscurely radiated; cardinal teeth rather large; lateral teeth long and somewhat curved; nacre purple and iridescent.

Hab. Black Creek and Lake Monroe, Florida. S. B. Buckley.

My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. .8, Length 1.2, Breadth. 2.1 inches.

Shell elliptical, compressed, inequilateral, subbiangular behind; umbonial slope slightly angular; substance of the shell thin; beaks somewhat prominent and minutely undulated at the tip; ligament long and thin; epidermis smooth and polished, dark-brown, with obscure rays over the whole disk; cardinal teeth rather large, and disposed to be double in both valves; lateral teeth long, rather thin, and somewhat curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices under the plate posterior to the cardinal tooth; cavity of the shell shallow; cavity of the beaks small and subangular; nacre purple and iridescent.

Remarks.—The three specimens before me vary but little in size or form, and are all purple—others may differ in colour. It is rather a diminutive species, allied to complanatus, but may easily be distinguished from that shell. The epidermis being filled with dark-green rays over the whole disk, gives it a very dark hue. In the more perfect individuals, the exterior is very smooth and highly polished.

Unio Monroensis, Pl. 41. Fig. 8.

Testâ ellipticâ, subcompressâ, inæquilaterali, posticè subangulatâ; valvulis crassis; natībus prominulis; epidermide rufofuscâ; dentibus cardinalībus parvulis; lateralībus longis, lamellatis curvisque; margaritâ lividâ et iridescente.

Shell elliptical, rather compressed, inequilateral, somewhat angular behind; valves thick; beaks somewhat prominent; epidermis reddish-brown; cardinal teeth rather small; lateral teeth long, lamellar, and curved; nacre livid and iridescent.

Hab. Lake Monroe, Florida. S. B. Buckley.

My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. 1.1, Length 1.7, Breadth 2.8 inches.

Shell elliptical, rather compressed, inequilateral, somewhat angular behind; umbonial slope angular; substance of the shell thick, thinner behind; beaks somewhat prominent; ligament rather long and thick; epidermis smooth, dark-reddish brown, nearly black on the posterior slope; cardinal teeth rather small, disposed to be double in both valves; lateral teeth long, lamellar, and curved; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the anterior end of the lamellar tooth; cavity of the shell rather shallow; cavity of the beaks rather deep and angular; nacre livid and iridescent.

Remarks.—A single specimen only of this species is before me.—Other specimens may vary in some characters. It is most nearly allied to *U. crassidens*, (Lam.,) but is a shorter species, and not so thick. The purple and white colour of the nacre in this specimen gives it a livid appearance—other specimens may be found of a salmon colour. It has a fine nacre with a blackish margin. No rays are visible on this specimen.

Unio aheneus, Pl. 41. Fig. 9.

Testâ valdè transversâ, compressâ, valdè inæquilaterali, posticè biangulatâ; valvulis tenuibus; natibus vix prominentibus, undulatis; epidermide tenebroso-fuscâ, radiatâ; dentibus cardinalibus minimis; lateralibus longissimis rectisque; margaritâ cupreâ.

Shell very wide, compressed, very inequilateral, biangular behind; valves thin; beaks scarcely prominent, undulated; epidermis dark-brown and rayed; cardinal teeth very small; lateral teeth very long and straight; nacre copper-coloured.

Hab. Black Creek, Florida. S. B. Buckley.

My cabinet and cabinets of Dr. Budd and Mr. Buckley.

Diam. .5, Breadth 2.1 inches.

Shell very wide, compressed, very inequilateral, biangular behind; umbonial slope angular and straight; substance of the shell very thin; beaks scarcely prominent, undulated at the tip; ligament very long and thin; epidermis dark-brown, with numerous dark-green oblique rays on the whole disk; cardinal teeth very small and granulate; lateral teeth very long, thin, and straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the anterior end of the lateral tooth; cavity of the shell shallow; cavity of the beaks very small and angular; nacre dark copper-colour and iridescent.

Remarks.—This is a very distinct species, belonging to that group of which the complanatus may be considered to be the type. It is remarkable for its dark copper-coloured nacre, which is very splendent. Indistinct undulations may be observed at the tip of the beaks, although the specimens are both eroded there. The cardinal teeth are remarkable in being so small and in being granular, and the position of the dorsal cicatrices is farther removed from the cardinal tooth than usual—even more so than in the Unio Shepardianus, (Nobis.) The posterior slope is elevated, compressed, and made very dark by thick green rays. The flattening behind the umbonial slope causes a second angle at the posterior margin.

Unio neglectus. Pl. 42. Fig. 10.

Testâ oblongâ, inflatâ, inæquilaterali; valvulis tenuibus; natibus subprominentibus; epidermide luteolâ, radiatâ; dentibus cardinalibus parvis; lateralibus longis, tenuibus subcurvisque; margaritâ subaureâ et iridescente.

Shell oblong, inflated, inequilateral; valves thin; beaks rather prominent; epidermis yellowish, rayed; cardinal teeth small; lateral teeth long, thin, and somewhat curved; nacre somewhat golden and iridescent.

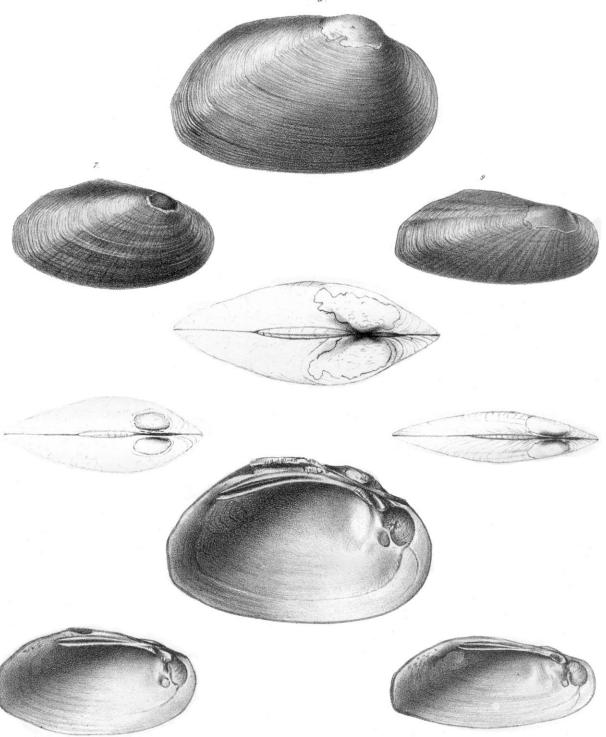
Hab. North Alabama. Dr. Budd. My cabinet and cabinet of Dr. Budd.

Diam. .8, Length 1.2,

Breadth 2 inches.

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- 7. Unio occultus.
 8. Unio Monroensis.
 9. Unio aheneus.

From Nature & on Stone by French.

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Shell oblong, inflated on the umbonial slope, which is rounded; substance of the shell very thin, thicker before; beaks rather prominent; ligament rather long and thin; epidermis yellow, inclining to saffron, with rather numerous indistinct green rays, more dense on the posterior portion; cardinal teeth small, tuberculate, single in the right and double in the left valve; lateral teeth long, thin, and somewhat curved; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed under the cardinal tooth; cavity of the shell deep and rounded; cavity of the beaks shallow and angular; nacre somewhat golden-coloured and very iridescent.

Remarks.—A single specimen of this shell was given to me last winter by Dr. Budd, of New York, and I have delayed the description in the hope of having others for comparison. In its exterior form and appearance, it resembles the Margaritana marginata—but its teeth at once distinguish it from that species. The cardinal teeth are remarkably small, being little more than tubercles.

Unio superbus. Pl. 42. Fig. 11.

Testâ alatâ, triangulari, valdè inflatâ, valdè inæquilaterali; valvulis subcrassis; natibus elevatis; epidermide tenebroso-fuscâ; deatibus cardinalibus perlongis lamellatisque; lateralibus longis, lamellatis curvisque; margaritâ aureâ et valdè iridescente.

Shell winged, triangular, very much inflated, very inequilateral; valves rather thick; beaks elevated; epidermis dark-brown; cardinal teeth very long and lamellar; lateral teeth long, lamellar, and curved; nacre golden and very iridescent.

Hab. New Holland. J. C. Jay, M.D.

My cabinet and cabinet of Dr. Jay.

Diam. 1.9, Length 3.

Breadth 3.6 inches.

Shell winged, triangular, very much inflated, very inequilateral; substance of the shell rather thick, thinner behind; beaks elevated, rounded; ligament very long and rather thin; epidermis dark-brown, with three obscure rays on the posterior slope; cardinal teeth very long, double in the right and single in the left valve; lateral teeth long, lamellar, and curved; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices nearly concealed under the plate between the cardinal and lateral teeth; cavity of the shell very deep and rounded; cavity of the beaks very deep and angular; nacre pale golden, brilliant, and iridescent.

Remarks.—I owe to the kindness of Dr. Jay the possession of this beautiful and rare Unio. Several of its characteristics are very remarkable; its long cardinal teeth being reversed, the double one being in the right valve and the single one in the left. The nacre is unusually rich and splendid. The beaks of the specimen before me are eroded, but they are perfect enough to observe that the tips must have been thickly set with minute undulations, probably radiating and not concentric. In outline, it has some resemblance to Unio purpuratus, (Lam.,) but is more triangular and more inflated.

Dr. Jay received this species from a correspondent in New Holland, accompanied with the *Unio delphinus*, (Nobis.) The latter species does not, however, I believe, exist on that island, but on the coast of Malacca, in the river Souzi, the locality given to me when I described it being erroneous.

Unio aratus, Pl. 42. Fig. 12.

Testà ellipticà, crebrè et transversè sulcatà, subcompressà, inæquilaterali, posticè angulatà; valvulis subcrassis; natibus prominulis; epidermide pallido-luteà; dentibus cardinalibus subgrandibus; lateralibus longis curvisque; margarità albà.

Shell elliptical, closely and transversely furrowed, rather compressed, inequilateral, angular behind; valves rather thick; beaks somewhat prominent; epidermis pale-yellow; cardinal teeth rather large; lateral teeth long and curved; nacre white.

Hab. My cabinet.

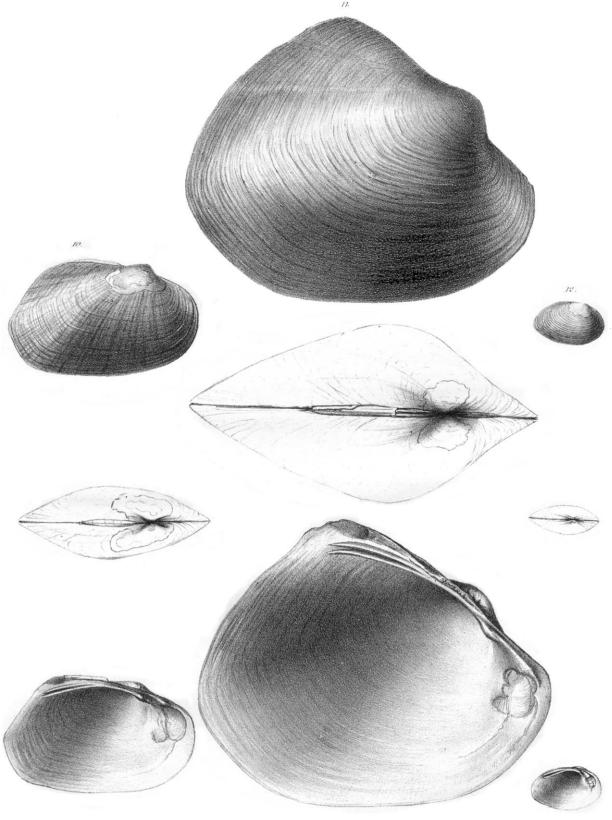
Diam. .3, Breadth .7 of an inch.

Shell elliptical, thickly, regularly, and transversely furrowed, rather compressed, inequilateral, angular behind; umbonial slope rounded; posterior slope with two raised curved lines extending from the beak to the posterior margin; substance of the shell rather thick; beaks somewhat prominent; ligament very short and very thin; epidermis pale-yellow over the whole disk, and without any appearance of rays; cardinal teeth rather large and disposed to be double in both valves; lateral teeth long and curved; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed across the centre of the cavity of the beaks; cavity of the shell rather shallow; cavity of the beaks rather shallow and angular; nacre white.

Remarks.—A very remarkable little shell which may prove to be rather a young individual. The regular, transverse, closely-set furrows over the whole disk are very striking, it being the first species which I have seen with this perfect characteristic. The beaks are somewhat eroded, and I do not observe any undulations on them. Small ones may, perhaps, occur on perfect specimens. It seems to be somewhat allied to *Unio stramineus*, (Conrad,) but it differs somewhat in outline, and that species is not regularly furrowed, but rather transversely wrinkled, and is rather a large species, with beautiful undulations at the tip of the beaks.

The habitat of this shell is not known. The person from whom I procured it could not even inform me whether it was exotic or not.

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- 10. Unio **neglectus** 11. Unio superbus. 12. Unio aratus.

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